

CLAIMS

WE CLAIM:

1. A method for heat-stabilizing a specific binding activity of a protein, the method comprising the steps of:
mixing the protein with at least one saccharide compound in a liquid suspension;
and
drying the suspension to obtain a solid that comprises the protein and the saccharide compound;
wherein the saccharide compound is selected from the group consisting of a monosaccharide, a disaccharide, a polysaccharide, an alkylated monosaccharide, an alkylated disaccharide, an alkylated polysaccharide, a monosaccharide alcohol and an alkylated monosaccharide alcohol; and
wherein the protein provided in the solid loses less of its binding activity upon being exposed to a binding-activity-destroying temperature than the same protein not treated according to mixing and drying steps of the method.
2. The method of claim 1, wherein the saccharide compound is selected from the group consisting of a monosaccharide of 5 or 6 carbons, a disaccharide consisting of monosaccharide residues of 5 or 6 carbons, and a polysaccharide consisting of monosaccharide residues of 5 or 6 carbons.
3. The method of claim 2, wherein the polysaccharide contains linear, unbranched chains.
4. The method of claim 1, wherein the saccharide compound is selected from the group consisting of an alkylated monosaccharide of 5 or 6 carbons, an alkylated disaccharide consisting of alkylated monosaccharide residues of 5 or 6 carbons, and a polysaccharide consisting of alkylated monosaccharide residues of 5 or 6 carbons.
5. The method of claim 1, wherein the monosaccharide alcohol has 5 or 6 carbons.

6. The method of claim 1, wherein the protein is selected from the group consisting of an antibody, a soluble receptor, and a soluble part of a receptor that contains the receptor's ligand binding domain.
7. The method of claim 6, wherein the protein is an antibody.
8. The method of claim 7, wherein the antibody is provided in an egg preparation.
9. The method of claim 1, wherein the liquid suspension is a solution.
10. The method of claim 1, wherein the liquid suspension is a colloid.
11. The method of claim 1, wherein the liquid suspension is an emulsion.
12. The method of claim 1, wherein the protein is an antibody produced in an egg and the liquid suspension is an egg liquid suspension.
13. The method of claim 12, wherein the egg liquid suspension is spray dried.
14. A method for producing a product containing a protein with a specific binding activity, the method comprising the steps of:
 - providing a composition that comprises a solid according to claim 1 wherein the solid comprises a protein with a specific binding activity and a saccharide compound; and
 - exposing the composition to a binding-activity-destroying temperature, wherein the protein in the composition loses less of its binding activity in comparison to a control protein that is exposed to the same conditions except that it is not heat stabilized as provided in claim 1.
15. The method of claim 14, wherein the binding-activity-destroying temperature to which the composition is exposed is at least 70°C.
16. The method of claim 14, wherein at least 20% of the specific binding activity of the heat-stabilized protein is retained after being exposed to the binding-activity-destroying temperature.

17. The method of claim 14, wherein the product containing a protein with a specific binding activity is selected from the group consisting of a human food product, a non-human animal feed product, a human dietary or nutritional supplement, a non-human animal dietary or nutritional supplement, a pharmaceutical product, and a cosmetic product.

18. The method of claim 17, wherein the product is an animal feed product.

19. The method of claim 18, wherein the animal feed product is a feed pellet.

20. The method of claim 18, wherein the method for producing the product is selected from the group consisting of a steam pelleting method, an extrusion method, and a method that employs an expander or compactor.

21. A composition comprising a protein having a specific binding activity and a saccharide compound wherein the saccharide compound is operably associated with the protein to heat-stabilize the specific binding activity of the protein.

22. A composition comprising a solid obtained according to the method of claim 1.

23. A composition comprising a product obtained by the method of claim 14.